REMARKS

Reconsideration of the application, as amended, is requested.

Claims 19 and 20 have been amended to depend from claim 18 to correct a typographical error. The Office Action dated December 4, 2009, appears to treat claims 19 and 20 as if they did depend from claim 18, such that this amendment is not believed to create any issues preventing entry of the amendments under 37 C.F.R. § 1.116.

In the Office Action dated December 4, 2009, claims 1-2 and 4-6 were rejected under 35 U.S.C. 103(a) "as being unpatentable over Zenor (5,447,006) in view [*sic*] and further in view of Starr (5,895,536)." The Office Action appears to include a typographical error, and it is unclear if claims 1-2 and 4-6 were rejected over Zenor `006 and Starr `536 or if the claims were rejected over Zenor `006, Starr `536, and another references (*i.e.*, it is unclear why the Office Action states "and *further* in view"). For purposes of this response, Applicants can only assume that claims 1-2 and 4-6 were rejected over Zenor `006 and Starr `536 only.

In the Office Action, claim 7 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Zenor `006 in view of Starr `536 and further in view of Venable U.S. Patent No. 4,996,812. Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Zenor `006 in view of Starr `536 applied to claim 1 and further in view of Naipawer, III U.S. Patent No. 5,737,897. Claims 8-14, 17-22, and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Venable `812 in view of Zenor `006, Starr `536 and further in view of Van Wagoner (VW) U.S. Patent No. 4,719,723. Claims 15-16 and 23-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Venable `812 in view of Zenor

`006, Starr `536, VW `723, and further in view of Beck U.S. Patent No. 4,498,267. Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Venable `812 in view of Zenor `006, Starr `536,. and VW `723 as applied to claim 21 and further in view of Naipawer III `897.

As an initial matter, the Office Action is unclear with respect to the alleged disclosure of Starr `536. At the bottom of page 2 through the top of page 3, the Office Action states: "Starr discloses such an adhesive used to securing [sic] roofing membranes on pitched roofs. See [sic]

In view of the above, it would have been obvious to modify Zenor . . . "

Thus, there appears to be material missing after "See" at the bottom of page 2, and it is unclear what portion of Starr `536 is being cited.

Also, the Office Action appears to be contradictory with respect to the disclosure of Zenor `006. Page 2 of the Office Action states "Zenor also lacks the roof structure of claim 1, wherein: said silyl-terminated polymer comprises a silyl-terminated polyether" (emphasis added). At page 3, the Office Action states "Zenor disclose [sic] an adhesive but lacks a moisture curing silyl-terminated polymer based adhesive disposed on at least a portion of said lower side in contact with said upper surface of said roof substrate" (emphasis added). Near the bottom of page 3, the Office Action states "Zenor lacks the roof deck structure of claim 5, wherein: said polymer comprises a silyl-terminated polyether. Starr discloses such an adhesive used to securing [sic] roofing membranes on pitched roofs" (emphasis added).

However, near the bottom of page 6, the Office Action states "Zenor discloses the adhesive comprises a silyl-terminated polyether based adhesive. See motivation statement above." (Emphasis added.) The statement concerning Zenor `006 at page 6 of the Office Action directly contradicts the statements concerning Zenor `006 at pages 2 and 3 of the Office Action.

At page 8, the Office Action states "Zenor discloses the [sic] adhesive includes a silyl-terminated polymer..[sic]" (emphasis added).

At page 10, the Office Action states "Zenor teaches the specific type of adhesive [sic]" (emphasis added).

Thus, the Office Action appears to be directly contradictory with respect to whether or not Zenor `006 discloses a silyl-terminated polyether.

As discussed in more detail below, Zenor `006 actually discloses an NMP (N-methyl-2-pyrrolidone) chemical liquid activator that "is used in an application sequence followed by the use of a standard known welding procedure to weld the patch section to the existing single ply roof membrane . . . " (Column 2, lines 28-32, emphasis added.)

Applicants also note that the Office Action is somewhat unclear with respect to the obviousness rationale being applied, and it appears to treat a very wide array of adhesives and construction components as being equivalent and interchangeable, such that any combination of known elements is obvious if a trivial rationale for modification can be conceived of. In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact

that the components at issue are functional or mechanical equivalents. MPEP 2144.06, citing *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958) (emphasis added). In the present case, the prior art adhesives and roofing components are not equivalents, and the prior art does not recognize any equivalency.

Furthermore, ""[I]t is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *In re Wesslau*, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); see also *In re Mercier*, 515 F.2d 1161, 1165-66, 185 USPQ 774,778 (CCPA 1975). *See also Abbott Laboratories v. Sandoz, Inc.* 544 F.3d 1341 (Fed. Cir. 2008) "In addressing the question of obviousness a judge must not pick and choose isolated elements from the prior art and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention.", citing *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 106 S.Ct. 1578, 89 L.Ed.2d 817 (1986). Significantly, the CAFC *Abbott Laboratories* decision affirming *In re Wesslau* occurred after the U.S. Supreme Court Decision in *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).

Independent claim 1 recites, among other features, "a moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer. At page 2, the Office Action states "Zenor discloses . . . a moisture-curing substantially non-volatile adhesive but not comprised of a silyl-terminated polymer disposed on at least a portion of said lower side of

said waterproof membrane in contact with said upper surface of said roof substrate". This portion of the Office Action appears to be factually incorrect for several reasons.

As discussed above, Zenor `006 (entitled "Method for Patching Single Ply Roof") teaches use of NMP to bond a patch 12 to existing roof membranes 34 and 36 (Figs. 3 and 4). Zenor `006 itself actually teaches use of mechanical fasteners to secure the roof membranes to the roof substrate. Specifically, at column 1, lines 18-25, Zenor `006 states "[T]he sheets which form the membrane are secured to the insulation and the underlying roof deck at spaced locations by fastener assemblies which are spaced along the margins of the sheet. Each fastener assembly comprises a washer-like disc made of plastic or metal and further comprises a screw adapted to thread into the roof deck to cause the disc to clamp the membrane downwardly against the insulation. Roofs of this type are known as single ply roofs." (Emphasis added.) At column 3, lines 19-28, Zenor `006 states "This roof system is comprised of a roof deck 30, a layer of insulation 32, a first sheet of flexible roof membrane 34 and a second sheet of roof membrane 36 overlapping membrane 34 and secured thereto using an adhesive 38 or a known hot-air welding method or any other known suitable sealing method or material. Typically known fasteners are used on known centers, preferably with known sealants to secure the single ply membrane to the deck as required" (emphasis added). The "known fasteners" are clearly mechanical fasteners, such as the washer/screw. In a conventional single ply membrane roof as disclosed in Zenor `006, sealant may be deposited on top of the roof membrane at the point where the screw punctures the membrane to seal the penetration. However, the sealant is disposed on top of the membrane, and it does not adhere

the roof membrane to the roof substrate. The NMP of Zenor `006 is used for welding a membrane patch to an existing single ply roof membrane. At column 4, liens 1-5, Zenor `006 states "[S]tep 3 . . . wipe a coating of NMP onto the cleaned surface 26". As shown in Fig. 4, surface 26 is an upwardly-facing membrane surface that is brought into contact with membrane patch 12.

With reference to Appendix A, NMP is "a powerful polar solvent." Applicants assert that there is no evidence of record that NMP would in any way adhere the membrane of Zenor `006 to the roof substrate (layer of insulation 32) of Zenor `006. Referring again to Appendix A, an NMP "dissolves polymers," and there is no evidence of record suggesting that NMP could adhere the roof membrane of Zenor `006 to the insulation 32 of Zenor `006 even if this were to be attempted. For example, it appears to be possible that the NMP of Zenor `006 would simply dissolve foam 32 without providing any adhesion whatsoever.

Accordingly, it is clear Zenor `006 does not explicitly or inherently disclose use of an adhesive to secure a roof membrane to a roof substrate as recited in claim 1. Even if the adhesive of Starr `536 were substituted for the NMP of Zenor `006, the result would not be a roof structure including a waterproof membrane adhered to a roof substrate by a moisture curing adhesive as recited in claim 1.

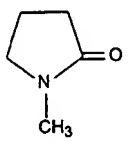
Applicants reiterate that Zenor `006 itself actually teaches use of mechanical fasteners to secure the roof membrane to the insulation and underlying roof deck. Applicants also reiterate that claim 1 recites "a moisture curing substantially nonvolatile adhesive comprising a silyl-terminated polymer disposed on at least a portion of said lower side of said waterproof

membrane in contact with said upper surface of said roof substrate and bonding said waterproof membrane to said roof substrate" (emphasis added).

Further still, the patch membrane 34 of Zenor `006 would need to provide a waterproof seal around the cutout 16 if it were to provide an effective patch. The expanding foam adhesive of Starr `536 is applied in a discontinuous pattern "so that the passage of air (and moisture) through the interstitial spaces is facilitated rather than inhibited" (column 8, lines 19-20) (emphasis added). Thus, Starr `536 is directly contrary to Zenor `006, and there is no rational reason to think one skilled in the art would combine and modify these references in the hypothetical manner proposed in the Office Action.

Also, contrary to the Office Action, NMP is actually volatile. (See, e.g., U.S. Patent No. 6,348,601 "owing to its ready volatility, thermal stability, high polarity and aprotic properties, NMP is suitable as a solvent for polymers" (emphasis added).) Thus, Zenor `006 does not disclose a "substantially non-volatile adhesive" (emphasis added) as asserted in the Office Action. This is not a trivial distinction in that a membrane that does not have a fleece backing as recited in claim 1 would not provide for venting of vapors if a volatile adhesive were to be used.

Also, with respect to the statement in the Office Action that Zenor `006 discloses a "moisture curing" adhesive, Applicants note that the formula for NMP is C_5H_9NO, and it has the following molecular structure:

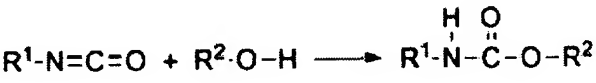


Applicants respectfully assert that there is no evidence of record that this is "moisture curing" in any way. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" MPEP 2112(IV), citing *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)(quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991))(emphasis added).

At page 2, the Office Action states that Zenor also lacks "said silyl-terminated polymer comprises a silyl-terminated polyether" and that "Starr discloses such an adhesive used to securing [sic] roofing membranes on pitched roofs. See [sic] In view of the above . . . ". As discussed above, the Office Action appears to include a typographical error. It is therefore unclear what feature of Starr `536 is alleged to be a silyl-terminated polyether. Starr `536 discloses a "Tile Bond™ roof tile adhesive" at column 4, line 61; column 5, line 37; and column 5, line 56. Starr `536 states that the Tile Bond™ adhesive is "manufactured by Insta-Foam Products of Joliet, Illinois (column 4, lines 62-63). At column 5, lines 44-46, Starr `536 states that "this Tile Bond™ adhesive is a one-component high-density polyurethane adhesive foam."

With reference to Appendix B, the Tile Bond™ adhesive disclosed in Starr `536 appears to be the same Tile Bond™ adhesive that is now available from Dow Chemical Company. As described in Appendix B, Tile Bond™ is a one-part polyurethane foam adhesive. This adhesive

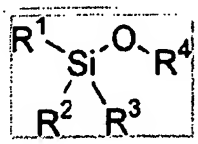
appears to utilize a urethane linkage that is produced by reacting an isocyanate group (-N=C=O) with a hydroxyl (alcohol) group, (-OH). Polyurethanes are produced by the polyaddition reaction of a polyisocyanate with a polyalcohol (polyol) in the presence of a catalyst and other additives. In this case, a polyisocyanate is a molecule with two or more isocyanate functional groups, R-(N=C=O)n ≥ 2 and a polyol is a molecule with two or more hydroxyl functional groups, namely, R'-(OH)n ≥ 2. The generalized polyurethane reaction is as follows:



Applicants have reviewed Starr `536 and can find no disclosure of a moisture curing adhesive as recited in claim 1.

Neither Zenor `006 nor Starr `536 disclose "a moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer" as recited in claim 1, and no combination of these references could possibly anticipate claim 1.

Furthermore, silyl ethers are a group of chemical compounds which contain a silicon atom covalently bonded to an alkoxy group. The general structure is $R^1R^2R^3Si\text{-}O\text{-}R^4$ where R4 is an alkyl group (a hydrocarbon group, such as CH3- or C3H7-) or an aryl group (i.e., a functional group or substituent derived from a simple aromatic ring). The general structure of a silyl ether is:



In simple terms, neither Zenor `006 nor Starr `536 disclose a chemical compound (adhesive) including a silicon atom covalently bonded to an alkoxy group, such that no combination of these references could possibly anticipate the arrangement of claim 1.

Further still, neither Zenor `006 nor Starr `536 even disclose use of an adhesive to bond a waterproof membrane to a roof substrate as recited in claim 1. As discussed above, Zenor `006 actually discloses use of mechanical fasteners to secure a membrane to a roof substrate, and the NMP of Zenor `006 is only used to bond a patch membrane 12 to roof membranes 34 and 36. Starr `536 discloses use of polyurethane adhesive foam to secure roof tiles 405 to an underlayment 32. Starr `536 does not disclose use of an adhesive to secure a waterproof membrane to a roof substrate. Accordingly, no combination of Zenor `006 and Starr `536 could possibly anticipate claim 1 for this reason as well as those set forth above.

Still further, there is no evidence of record that the polyurethane adhesive foam of Starr `536 would actually adhere a "waterproof membrane having an upper side and a lower side that is substantially free of fleece material" as recited in claim 1 to a "roof substrate" as recited in claim 1. Concrete and clay roof tiles have much different surface characteristics than waterproof membranes (e.g., the chlorosulfonated polyethylene membrane 34 of Zenor `006). The prior art of record does not show that the Starr `536 adhesive foam would provide adhesion if used in conjunction with the chlorosulfonated polyethylene membrane of Zenor `006.

Also, the polyurethane foam of Starr `536 is unlikely to be suitable for bonding a roof membrane to a roof substrate as recited in claim 1. At column 5, lines 45-47, Starr `536 states

that the polyurethane adhesive foam is "a minimal expanding foam." Although the degree to which the foam of Starr `536 expands is unclear, it is clear that the foam does in fact expand. If the foam of Starr `536 were positioned under the membrane of Zenor `006, it is quite possible the foam would expand to form surface irregularities that would interfere with drainage and/or cause other problems. Also, Starr `536 discloses that the foam is "concentrated in deposits at opposing corners of the underside of the roof tile" (column 5, lines 3-5), and it "does not substantially subdivide the undersurfaces of each roof tile into discrete areas to thereby partially cut off air circulation" (column 5, lines 1-3). It is quite possible that the adhesive foam of Starr `536 includes volatile compounds and/or that the adhesive foam outgases during the curing process. Such outgassing could cause significant problems if it occurred in a roofing system wherein a non-fleece-backed waterproof membrane (as recited in claim 1) is adhesively secured to a roof substrate as recited in claim 1. Specifically, the gas would not have a way to escape, and this would likely lead to formation of blisters and attending lack of adhesion.

Applicants note that Venable U.S. Patent No. 4,996,812 states that in polyurethane foam adhesive/EPDM membrane systems "the membrane is secured in place, with a vapor venting spacing being provided between the adhesive material and rubber-like sheet" (column 1, lines 21-24) (emphasis added). At column 1, lines 39-44, Venable `812 states that "it is very difficult to properly bond the EPDM rubber directly with an adhesive and accordingly the resultant roof is subject to wind uplifts. Secondly, such a construction provides little if any vapor ventilation capabilities, and thus such roofs are often prone to excessive blistering."

(Emphasis added.) Venable `812 teaches a membrane having a "fleece-like matting" that "makes it possible to fabricate the roof structure with a vapor venting spacing between the adhesive material and flexible membrane sheet" (column 1, lines 53-60) (emphasis added).

Applicants reiterate that claim 1 specifically recites that the waterproof membrane has "a lower side that is substantially free of fleece material." There is no evidence of record showing that the foam adhesive of Starr `536 could be used to successfully adhere a waterproof membrane (that does not have a fleece backing) to a roof substrate as recited in claim 1.

At the bottom of page 3 through the top of page 4, the Office Action states that "it would have been obvious to modify Zenor to include the recited material in order to employ readily available, common and workable materials of construction in order to [sic] and to include the recited adhesive in order to provide shorter curing times which is also non-shrinking as taught by the prior art" [sic]. It is unclear what "prior art" is being referred to at the top of page 4 of the Office Action. On top of page 3, the Office Action states that "[I]n view of the above, it would have been obvious to modify Zenor to include the recited material in order to employ readily available, common and workable materials of construction in order to [sic] and to include the recited adhesive in order to provide shorter curing times which is also non-shrinking as taught by starr [sic] al." Accordingly, Applicants can only assume that the Office Action is asserting that Starr `536 discloses a "non-shrinking" adhesive. This is simply incorrect. As discussed above, Starr `536 actually states that "[T]his Tile Bond™ adhesive is a one-component high density polyurethane adhesive foam. This type of foam is a

minimal expanding foam" (column 5, lines 44-47). Thus, the assertions in the Office Action that the Starr `536 adhesive is "non-shrinking" is directly contrary to the actual disclosure of Starr `536. Applicants respectfully assert that the expansion of the Starr `536 polyurethane foam strongly suggests that the Starr `536 foam would be unsuited for use in the hypothetical combination proposed in the Office Action.

Claims 2-4 depend from claim 1 and are therefore believed to be allowable for those reasons set forth above in connection with claim 1.

Independent claim 5 recites, among other features, a "moisture curing silyl-terminated polymer based adhesive". As discussed above in connection with independent claim 1, neither Zenor `006 nor Starr `536 disclose a moisture curing silyl-terminated polymer adhesive, and no combination of these references can possibly anticipate claim 5. Furthermore, the polyurethane foam of Starr `536 does not include a silicon atom that is covalently bonded to an alkoxy group, such that Starr `536 does not disclose a silyl-terminated polymer based adhesive for this reason as well. Still further, neither Zenor `006 nor Starr `536 disclose use of an adhesive to secure a waterproof membrane to a roof substrate. Zenor `006 discloses use of NMP to secure a membrane patch to an existing roof membrane, and use of mechanical fasteners to secure the roof membrane itself to the "insulation and underlying roof deck." (Column 1, line 19.) Accordingly, no combination of Zenor `006 and Starr `536 could possibly anticipate independent claim 5.

Claims 6 and 7 depend from claim 5 and are therefore believed to be allowable for those reasons set forth above in connection with independent claim 5.

Independent claim 8 recites, among other features, a "moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer." At page 5, the Office Action states that "the Starr reference has been applied in the same manner as described above." Also, there is no evidence of record that moisture is involved in the polyurethane foam of Starr `536 in the polyurethane reaction. Furthermore, the polyurethane foam of Starr `536 does not include a silicon atom covalently bonded to an alkoxy group, such that Starr `536 does not disclose a "silyl-terminated polymer" as recited in independent claim 8. As discussed above, Zenor `006 also does not disclose any such adhesive.

Venable `812 discloses a polyurethane foam adhesive including diisocyanate and polyol components that are mixed in a gun 16 (column 4, lines 15-18). This is also clearly not a "moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer" as recited in independent claim 8. Venable `812 specifically teaches "a vapor venting spacing between the adhesive material and flexible membrane sheet" (column 1, lines 59-60) (see also column 5, lines 11-15). Clearly, "venting of vapors" as taught by Venable `812 would not be required if the Venable `812 adhesive were "non-volatile" as recited in claim 8. Applicants have reviewed Van Wagoner `723 and can find no disclosure of a "moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer" (emphasis added) as recited in claim 8.

At page 6, the Office Action states that "Starr et al [sic] discloses such an adhesive used to securing [sic] roofing membranes on pitched roofs. See column 1, line [sic] 10-17. See column 3, line 57 thru column 4, line 15." This portion of Starr `536 discusses U.S. Patent

No. 5,362,342 and states that "As taught in the aforesaid `342 patent, a two-component foam is deposited onto the exterior surface 33 of the roof 22." However, at column 1, lines 9-10, Starr `536 discloses "one-component high-density polyurethane adhesive foams". Accordingly, it is unclear if the Office Action is asserting that the one-component polyurethane foam of Starr `536 is a silyl-terminated polymer, or if the Office Action is asserting that the two-component foam of Murray et al. U.S. Patent No. 5,362,342 is a silyl-terminated polymer. Nevertheless, this is believed to be a moot point because neither Starr `536 nor Murray `342 disclose a silyl-terminated polymer. At column 3, lines 50-52, Murray `342 states that "The chemical reactants for the polyurethane foam are a polyisocyanate designated as component A and a liquid organic resin designated as component B." As discussed above in connection with claim 1, polyurethanes do not include a silyl group (i.e., a covalently bonded silicon atom).

Accordingly, none of the cited references disclose a moisture curing substantially nonvolatile adhesive comprising a silyl-terminated polymer as recited in independent claim 8, such that no combination of the cited references could possibly anticipate independent claim 8.

Applicants reiterate that "[T]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" MPEP 2112(IV), citing *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)(quoting

Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991))(emphasis added).

Claims 9-15 depend from claim 8 and are therefore believed to be allowable for those reasons set forth above in connection with independent claim 8.

Independent claim 17 recites, among other features, "moisture curing adhesive bonding the foam insulation to the steel deck without the use of mechanical fasteners." At page 7, the Office Action states that "it is clear that if one used the moisture cured adhesive to bond the membrane to the foam substrate then one would also use the adhesive to bond the foam to the metal decking and to bond the foam to the fiberglass gypsum and the bond the fiberglass gypsum to the waterproof membrane in order to preserve the integrity of the roof deck." At page 8, the Office Action states that "Venable discloses . . . a moisture curing substantially non-volatile adhesive." However, as discussed above in connection with claim 8, Venable `812 does not disclose any such adhesive, and the Office Action is simply incorrect. The prior art does not disclose "the moisture cured adhesive" and no combination of the cited references could possibly anticipate claim 17. Applicants reiterate that "[T]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill'." (emphasis added) MPEP 2112(IV), *supra*.

Claims 18-20 (as amended herein) depend from claim 17 and are therefore believed to be allowable for those reasons set forth above in connection with independent claim 17.

Independent claim 21 recites, among other features, "moisture-curing adhesive disposed between the steel deck and the substantially rigid panel." At page 8, the Office Action states that "Venable discloses . . . moisture curing adhesive 15 disposed between the steel deck and the substantially rigid panel in contact with the upper deck surfaces and the lower surface of the substantially rigid panel." This assertion is simply incorrect. With reference to Fig. 3 of Venable `812, the adhesive 15 is disposed on an upper surface of foam 14. As discussed above, Venable `812 actually teaches that vapor venting space must be provided between the membrane and the upper surface of the foam. Referring again to Fig. 3 of Venable `812, Venable `812 does not disclose any such venting space between decking 12 and foam 14. Applicants reiterate that "to establish inherency, the intrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and it would be so recognized by persons of ordinary skill.'" MPEP 2112(IV) No combination of the cited references could possibly anticipate independent claim 21.

Claims 22-27 depend from claim 21 and are therefore believed to be allowable for those reasons set forth above in connection with independent claim 21.

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. MPEP 2142; *In re Fritch,* 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992). Applicants respectfully assert that the Examiner has not yet met her burden of establishing a prima facie case of obviousness with respect to the rejected claims. Consequently, the Examiner's rejection of the subject claims is inappropriate and should be withdrawn.

A Notice of Appeal pursuant to 37 C.F.R. § 41.31 is being filed herewith. Pursuant to MPEP 1207.04, an additional $15.00 is being remitted.

Applicants have made a concerted effort to place the present application in condition for allowance, and a notice to this affect is earnestly solicited. In the event there are any remaining informalities, the courtesy of a telephone call to the undersigned attorney would be appreciated.

Respectfully submitted,

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March 4, 2010
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APPENDIX A

Reply of March 4, 2010

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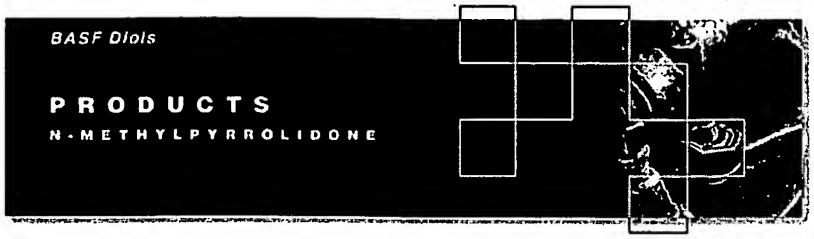


N-Methylpyrrolidone (NMP) is the lactam of 4-methylaminobutyric acid and a very weak base. NMP is a chemically stable and powerful polar solvent. These characteristics are highly useful in a variety of chemical reactions where an inert medium is of concern. Despite the stability of NMP, it can also play an active role in certain reactions: hydrolysis, oxidation, condensation, conversion with chlorinating agents, polymerization and o-alkylation, and related reactions.

Applications

Recovery of Pure Hydrocarbons in Petrochemical Processing
A well-established application for NMP is the large-scale recovery of hydrocarbons by extractive distillation. This technique utilizes the high solubility of hydrocarbons in NMP and the fact that differences in volatility are sometimes considerably increased in the presence of NMP. Compared to other commercial solvents and extraction media, NMP offers the following advantages: no azeotropes are formed with hydrocarbons; NMP is very resistant to heat and chemicals; and NMP has a favorable toxicological and environmental profile.

Desulfurization of Gases
High concentrations of acidic compounds are often present in natural or synthesis gases. Examples are hydrogen sulfide, carbon oxysulfide, carbon dioxide and organic sulfur compounds. Rather than applying a chemical process, they are removed by physical scrubbing in several stages with a mixture of NMP, alcohol and water.

Plastics
NMP is a widely used industrial solvent for natural and synthesis plastics, waxes, resins and various types of paints. It dissolves polymers, such as cellulose derivatives, polyamides, polyimides, polyesters, polystyrene, polyacrylonitrile, polyvinyl chloride, polyvinyl pyrrolidone, polyvinyl acetate, polyurethanes, polycarbonates; polyethersulfones, polysulfones, polyethers and many copolymers.

Surface Coatings
NMP is a non-corrosive high boiler with excellent solvent power and chemical resistance. Thus, NMP improves the properties of many surface coating systems. In particular, these effects are favorable for baked coatings that are cured at relatively high temperatures. NMP allows the production of highly filled paints and finishes. Since it improves the rheological properties, paints with superior flow-out and covering power are obtained. Hence, the coatings are more homogeneous, non-porous and non-cratering, and they display greater resistance to chemicals and higher mechanical strength.

Paint Stripping and Cleaning
Due to its high solvating power for plastics, resins, oil and grease, NMP has been successfully employed as an ingredient in paint removers, cleaners and degreasers. NMP can be used alone or in blends for removal of oil, carbon deposits and other tarry polymeric residues from metal chambers, pistons and cylinders, as well as for wet cleaning of combustion engines.

Plant Protection
NMP can be used as a solvent or co-solvent for the formulation of insecticides, fungicides, herbicides, seed treatment products and bioregulators where highly polar compounds are required. NMP is given preference over other highly polar solvents because it is exempt from the requirement of a tolerance when used as a solvent or co-solvent in pesticide formulations applied to growing crops, and it possesses a favorable toxicological and environmental profile.

Electronic Equipment Manufacture
The production of integrated circuits (ICs) calls for products of very high purity. The Electronic Grade NMP exceeds in all points the standard established by SEMI (Semiconductor Equipment and Materials Institute). This makes NMP a desired solvent for the electronic industry and producers of printed circuit boards. Blends of NMP with common solvents are utilized for the cleaning and degreasing of single-crystal silicon wafers for ICs.

For further information on NMP N-Methylpyrrolidone, refer to the Technical Data Sheet, NMP Physical Properties Page or contact the appropriate regional Diols customer representative on the Customer Service Page.

APPENDIX B

Reply of March 4, 2010

(4 Pages)

Dow Building Solutions

Strength Comes Easy

TILE BOND™ ROOF TILE ADHESIVE

There are many choices for installing concrete and clay roof tiles. And for the most part, none of them are ideal ... until now.

TILE BOND™ Roof Tile Adhesive from Dow gives a superior solution for installing roof tile. Not only does it go on fast – it stays strong, even in harsh environments where hurricanes, high winds and temperature extremes put adhesive-applied systems to the test.

Tiles Go on Fast and Easy

TILE BOND™ Roof Tile Adhesive can work on a variety of roof tile jobs, including most low/flat, medium, high and two-piece barrel (cap and pan) profiles. TILE BOND works in both new and re-roof applications. And it's ideal for patch and repair – as well as for specialty applications like ridge, rake, valley and hip installations.

TILE BOND is a single-component polyurethane adhesive that eliminates the problems typically found with other attachment methods like mortar, screws, wire ties and two-component foam systems. There's no equipment to calibrate (as you find in two-component products) – with TILE BOND, you just open the valve and you're ready to go.

roofs

roofs

walls

slabs

foundations

The Superior Solution

TILE BOND™ Roof Tile Adhesive gives contractors a welcome alternative to traditional attachment methods.

Screws puncture waterproof membranes and the roof deck, leading to leaks. Mortar is heavy, labor-intensive and subject to the effects of freeze-thaw cycles. And two-component systems represent a considerable investment of money, while also requiring continual monitoring of ratios.

By contrast, TILE BOND requires no equipment to apply and protects tiles and other components far better than other methods – while maintaining exceptional adhesive qualities in even the harshest weather.

Convenience and Simplicity

TILE BOND™ Roof Tile Adhesive comes in two convenient sizes. The 23 lb container of TILE BOND is ideal for larger jobs and will adhere up to 750 field tiles. A dispenser is included with each canister that helps you apply it quickly and accurately. The 20 oz can of TILE BOND is ideal for small jobs and repairs and will adhere up to 40 tiles. It's economical, too – one can of TILE BOND is equivalent to more than seven tubes of caulk adhesive.

Why We Aren't Afraid of Hurricanes

TILE BOND™ Roof Tile Adhesive is Metro-Dade Approved® and hurricane-proven. TILE BOND is approved for use in applications where 146 mph wind uplift resistance is required.

METRO-DADE

Acceptance No.: 06.0417.02
Expires: 08/23/2011

Strength on Any Job

Whatever the project, TILE BOND™ Roof Tile Adhesive is ready to work. You can be assured of the strength of TILE BOND in any application.

Low/Flat Tile Profile

Medium Tile Profile

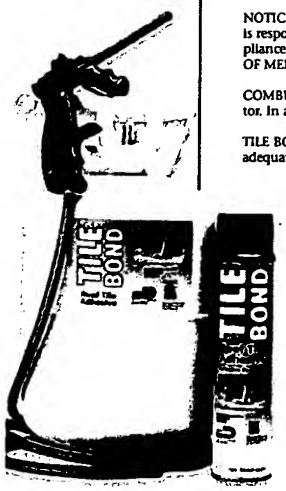
High Tile Profile

Two Piece Barrel Tile Profile

NOTE: TILE BOND paddy placement in photographs is for reference only.

For Technical Assistance, call or visit website:
- 1-888-583-BLUE(2583)
- www.dowstyrofoam.com/architect

Stick with Dow, where strength is a breeze.



THE DOW CHEMICAL COMPANY • Building Solutions • 200 Larkin • Midland, MI 48674
FOR TECHNICAL INFORMATION: 1-866-583-BLUE (2583)
FOR SALES INFORMATION: 1-800-232-2436
www.dowstyrofoam.com/architect

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Form No. 179-05054X-0707DM

TILE BOND™ ROOF TILE ADHESIVE

1. PRODUCT NAME

TILE BOND™ Roof Tile Adhesive

2. MANUFACTURER

The Dow Chemical Company
Dow Building Solutions
200 Larkin
Midland, MI 48674
1-866-583-BLUE (2583)
Fax 1-989-832-1465

www.dowadhesives.com

3. PRODUCT DESCRIPTION

Packaged in a self-contained disposable can or canister, TILE BOND™ is a portable one-component polyurethane foam roof tile adhesive for attaching concrete and clay roof tiles. It is quicker and easier to install compared to traditional attachment methods such as screws, mortar, wire ties and clips. Minimal-expanding TILE BOND™ Adhesive also provides greater attachment strength while minimizing nail penetrations and reducing roof weight loads. With its easy-to-use dispensing equipment, TILE BOND™ Adhesive can be quickly and efficiently dispensed in a highly consistent manner, eliminating the need for expensive equipment and ratio monitoring.

BASIC USE

TILE BOND™ Roof Tile Adhesive is designed for use with low/flat, medium, high and two-piece barrel profiles of roof tile when applied to a pre-approved underlayment. It is an ideal choice for all new, re-roof and specialty applications, including hip and ridge, rake and valley, and field and eave installations.

SIZES

- 28 oz can with reusable straw
- 23 lb canister with gun/hose assembly
- 23 lb canister only

4. TECHNICAL DATA

APPLICABLE STANDARDS

TILE BOND™ Roof Tile Adhesive meets the following ASTM standards:

- E84 – Foam adhesives, see Underwriters Laboratories, Inc. (UL) Classified, file R18231
- D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics
- D1623 – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
- D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- E96 – Standard Test Methods for Water Vapor Transmission of Materials
- D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics

CODE COMPLIANCE

TILE BOND™ Roof Tile Adhesive complies with the following codes:

- Florida Building Code FL 717-R2
- South Florida Building Code, Broward County, 1999 Edition
- Miami-Dade NOA 08-0512.18, Expiration Date 8/23/11

Contact your Dow sales representative or local authorities for state and local building code requirements and related acceptances.

PHYSICAL PROPERTIES

TILE BOND™ Roof Tile Adhesive exhibits physical properties indicated in Table 1.

ENVIRONMENTAL DATA

TILE BOND™ Roof Tile Adhesive (tank or aerosol) has a volatile organic compound (VOC) content of 1.0 wt % (11.7 g/L). The VOC content was determined according to the California Air Resources Board and the South Coast and Ventura Air Quality Management Districts Rule 1168 Adhesives and Sealants (amended Jan 7, 2005) and the Ozone Transport Commission Model Rule for Adhesives and Sealants (effective Jan. 1, 2009).

FIRE PROTECTION

TILE BOND™ Roof Tile Adhesive should be stored away from heat sources. It is combustible and may present a fire hazard if exposed to flame or temperatures above 240°F (116°C).

For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector.

5. INSTALLATION

TILE BOND™ Roof Tile Adhesive is a minimal-expanding foam that is quick and easy to dispense. See TILE BOND™ Adhesive operating instructions or contact a local Dow representative for more specific instructions.

TABLE 1: TYPICAL PHYSICAL PROPERTIES[1] OF TILE BOND™ ROOF TILE ADHESIVE

PROPERTY AND TEST METHOD	VALUE
Compressive Strength[2], ASTM D1621, psi, min.	14.3
Water Absorption, ASTM D2842, % by volume, max.	2.21
Water Vapor Permeance[3], ASTM E96, perm, max.	3.00
Tensile Strength, ASTM D1623, psi @ 180°F, 65% RH for 120 days, concrete to concrete	31.2
Density, ASTM D1622, lb/ft³	1.83
Closed Cell Content, ASTM D2856, %	86.3
Shelf Life, months	12

(1) Not to be considered sales specifications.
(2) Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.
(3) Based on 1" thickness.

SAFETY AND CONDITIONS OF USE

- Read the label and Material Safety Data Sheet carefully before use.
- TILE BOND™ Roof Tile Adhesive contains isocyanate and a hydrofluorocarbon blowing agent. Do not breathe vapor or mist. Use in well-ventilated areas or wear proper respiratory protection. Isocyanate is irritating to the eyes, skin and respiratory system, and may cause sensitization by inhalation or skin contact.
- TILE BOND™ Roof Tile Adhesive is very sticky and will adhere to most surfaces and skin. Do not get foam on skin. Wear gloves, and goggles or safety glasses. Cured foam must be mechanically removed or allowed to wear off in time.
- The contents are under pressure.

6. AVAILABILITY

TILE BOND™ Roof Tile Adhesive is distributed through an extensive network of Dow Building Solutions distributors. For more information, call 1-800-232-2436.

7. WARRANTY

Not applicable.

8. MAINTENANCE

When installed in accordance with Dow installation recommendations, TILE BOND™ Roof Tile Adhesive is a permanent adhesive requiring no maintenance.

9. TECHNICAL SERVICES

Dow can provide technical information to help address questions when using TILE BOND™ Roof Tile Adhesive. Technical personnel are available to assist with any roof tile project.
For technical assistance, call 1-866-583-BLUE (2583).

10. FILING SYSTEMS

- www.dowadhesives.com
- www.sweets.com

www.dowadhesives.com
Technical Information
1-866-583-BLUE (2583)

Sales Information
1-800-232-2436

IN THE U.S.
THE DOW CHEMICAL COMPANY
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Midland, MI 48674

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